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AUTHOR Riechmann, Sheryl Wetter
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ABSTRACT

Whether planning a course or trying to interpret the evaluation data from a completed one, it helps to know about the students involved. Student demographic data are of some use; however, another source of data--student learning styles--may prove more valuable. Student style and preference variables have been found to account for approximately 50% of the variance in students' ratings of teaching in one study. A number of models are available for viewing student learning styles. Some of these focus on student interactions and reactions in the classroom, some focus on the developmental changes students go through in their thinking as they grow older, or progress through school and still others attend to the cognitive dimension of how students perceive, interpret and manipulate information. Each of these approaches provides a special insight into student differences and to the need for teaching methods and course designs which tap the energy and resources of our varied student population. (Author)

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Learning Styles:
Their Role in Teaching Evaluation and Course Design

Sheryl Wetter Riechmann
University of Massachusetts/Amherst

Careful observation in the classroom leads to the conclusion that students react differently to class situations and learn in different ways (e.g. Grasha, 1972; Mann et. al., 1970). This becomes clear most easily in non-lecture classes where students have more opportunity to show their personal characteristics and ideas. However, the point holds true regardless of the teaching technique being employed. Understanding the nature of these learner differences and responding to them is becoming increasingly pressing with the changes we face in our student body (Cross, 1970).

One of the questions related to these student differences is the extent to which they affect students' satisfaction with instruction. Demographic variables such as age and sex are not particularly useful for understanding the differences in student evaluations of teaching (Kulik & Kulik, 1974). However, more personal characteristics of learners, something called learning styles, seem to be better predictors of the ratings students give.

Here, learning style is defined as a particular set of behaviors and attitudes related to the whole learning context. The research described briefly below helps to demonstrate the importance of learning styles for our understanding of student reactions to teachers and learning in the higher education setting.

The study was designed to help determine the extent to which the characteristics of students related to their evaluations of instruction. Data were collected in a relatively large introductory psychology class (N=151). The

independent variables were learning styles, as measured by the Grasha-Riechmann student learning style scales (1974); students' perceptions of the personal adjustment of the teacher relative to their own, measured on Bill's Index of Adjustment and Values (Bills, 1958); students' preferences for teacher or student centered teaching methods, measured on the Jensen Inventory of Classroom Activity Preferences (Jensen, 1974); and students' assessment of teacher behaviors from which they learn the most and/or derive enjoyment. These last variables were measured on specially designed forms of the evaluation items developed by Hildebrand and Wilson (1970). These evaluation items in their original form were also used in the teaching evaluation instrument which served as the measure of the dependent variable - student evaluations of teaching.

Multiple regresssions were computed. Student variables were found to account for approximately 50% of the variance in students' ratings of the teacher. The best predictors were the participant, avoidant and competitive learning styles. These styles accounted for about 30% of the variance. The other important predictors were students' expressed enjoyment of teachers showing interest in them as individuals and the value students placed on learning from clear, comprehensive content presentations. The importance of these latter two variables is supported in recent work by Centra (1976, 1977) showing ratings of these teacher behaviors to be related to student learning.

Though the study is in need or replication with larger samples and in other settings, it does urge us to consider further the implications of student learning styles for our understanding of student satisfaction with instruction and learning. A number of "models" exist for looking at learning styles amongst college students. These available frameworks can be placed roughly into three categories, each focusing on a particular piece of the learn-

ing process. These categories can be labled Classroom-interaction, Developmental and Cognitive. As with any category system, the distinctions are not absolute. However, hopefully, presentation of the styles in these categories will serve as memory organizers and provide terms for discussion.

Classroom-Interaction Approaches

As suggested by the category title, the classroom interaction approach for studying and defining learning styles is characterized by attempts to categorize typical student responses to other students, the teacher and the general classroom context. Both attitudes and behaviors are considered.

The work of Riechmann and Grasha (Grasha, 1972; Riechmann & Grasha, 1974; Riechmann, 1974) refered to above falls into this category. They define six learning styles: independent, dependent, participant, avoidant, collaborative and competitive. Each of these styles is defined around the following three dimensions: attitudes toward learning, views of teachers and peers, reactions to classroom procedures. Definitions of the styles appear in the first table. These styles were created from observations of students, student interviews and student Q-sorts of student behaviors and attitudes.

A similar set of styles was developed by Mann et. al. (1970). This group used questionnaires, interviews and the analysis of classroom verbal content to produce eight learning style clusters: Brief definitions of these eight learning clusters and related teaching styles are given in Table 2.

The social interaction approach to understanding student learning has high content validity to both students and teachers. Introduction of these styles results in smiles and head shakes over the familiarity of the student responses described in the style definitions. These approaches are, therefore, particularly useful for sensitizing people to the existence of styles, for helping them analyse

their reactions to learners with different styles and to assess their own reactions to various learning situations.

Developmental Approaches

The view that learning occurs differently at different ages or stages of development marks the developmental frameworks. For many people, the first name to come to mind here will be Piaget (e.g., 1952; Piaget & Inhelder, 1969). His work and that of his colleagues showing how, with age, we become able to deal with increasingly more abstract and complicated material crosses this developmental category and the cognitive one presented later.

A different approach focusing more on higher education settings is that of William Perry (1970). Perry has done extensive interviewing with students. This work resulted in the delineation of nine positions which students take to learning in the college years. These nine positions are given in Table three. His work is particularly helpful for understanding the different reactions and questions we get in a class of first year students versus seniors.

These developmental frameworks point to the need to consider differences in students' approach to and capacity for learning as they gain experience in school and mature. This need for such attention is supported by some of the evaluation literature looking at years in school as a variable in students' ratings of teaching (e.g. Cronen & Price, 1974). Students in different years place differential value on given teacher behaviors.

Cognitive Approaches

The more cognitive appraoches to learning styles center on "how the head works". The focus is on the particular mental strategies the person takes toward problems and new information.

Kolb, in his work on learning styles (1971), distinguishes four stages of

a problem-solving sequence. He has found that people often place different emphasis on the concrete experience, reflective observation, abstract conceptualization or active experimentation phase of this learning or problem-solving process. The urging here, as with many of the other style approaches, is to help people become aware of their tendencies and to broaden their response repertoire to be more adaptive to particular problem characteristics.

It is the work of Witkin and his colleagues (e.g., Witkin, Moore, Goodenough & Cox, 1977) that I find most powerful in my work with counselors, students and faculty. The findings of he and his colleagues on field independence and field dependence helps individuals put into perspective much of their life experience with people and with learning different kinds of information. In brief, field independence can be thought of as the ability to isolate a particular factor from related information. Field dependence, on the other hand, is the tendency to perceive things as whole or as inseparable. Each of these two styles, which seem to take form early in life, has advantages and disadvantages for learners and tends to relate to preferences for particular types of work and content areas. A brief description of some of the characteristics of field dependent and field independent learners are given in Table four. A small set of figures is presented in Table five which will enable you to get some ideas of your style in terms of these two dimensions. (The more you get right, the more likely you are to be field independent. Answers are provided on the bottom of Table six.)

The work of Hill and his colleagues at Oakland Community College goes further in distinguishing differences in cognitive style. Their "Cognitive Mapping" instrumentation helps people assess such characteristics as whether they learn better from material presented auditorily or pictorially, in words

or in symbols. Giving people such information helps them understand their past learning experiences (e.g., difficulty in lecture classes, strengths in reading graphs), make choices about what kind of learning contexts they want and work on developing strategies for learning previously difficult material.

The Importance of Learning Styles

Where does information about learning styles get us? Knowing that everyone does not learn in the same way can be a liberating experience. We are often quick to blame people for not trying or for having a poor learning history. In part, it could be that these people simply go about learning things differently. When material is presented to them in ways which fit their learning style or when they are given strategies for perceiving problems in new ways, they often can and do learn.

More personally, to know our own style can relieve a sense of being dumb or crazy for not being able to see or do things the way some other people do (e.g., do story problems, remember what was said or done at a social gathering). We can see ourselves and others more clearly. This knowledge is part of having a detailed picture of how we operate in the world and how we are likely to be received by others.

As teachers or therapists, it is helpful to have ways of understanding why our techniques do not work with all people and to remember that information needs to be presented differently for different people. Some people need information in writing, some need it in pictures or graphs, some learn best in a group, some learn best by themselves, some are better at perceiving the subtleties of social interactions and others have strengths in perceiving aspects of physical relationships or phenomenon. Having learning styles as a part of our perceptual framework can sharpen our ability to see people in ways which will

enable us to tailor our teaching or therapeutic style.

Learning styles are, of course, only one variable in human learning. However, it is one that can give us more clarity about our own behavior and that of others. Effectiveness stems from such awareness of self, others and alternatives for action.

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GRASHA-RIECHMANN STUDENT LEARNING STYLES*

Style	Definition
Independent	This response style is characteristic of students who like to think for themselves. They prefer to work on their own, but will listen to the ideas of others in the classroom. They learn the content they feel is important and are confident in their learning ability.
Dependent	This style is characteristic of students who show little intellectual curiosity and who learn only what is required. They see teachers and peers as sources of structure and support. They look to authority figures for guidelines and want to be told what to do.
Collaborative	This style is typical of students who feel they can learn the most by sharing their ideas and talents. They cooperate with teachers and peers and like to work with others. They see the classroom as a place for social interaction as well as content learning.
Competitive	This response style is exhibited by students who learn material in order to perform better than others in the class. They feel they must compete with other students for the rewards of the classroom, such as grades or the teacher's attention. They view the classroom as a win-lose situation where they must always win.
Participant	This style is characteristic of students who want to learn course content and like going to class. They take responsibility for getting the most out of class and participate with others when told to do so. They feel they should take part in as much of the class related activity as possible yet do little that is not part of the course outline.
Avoidant	This response style is typical of students who are not interested in learning course content, at least in the traditional classroom. They do not participate with students and teachers. They are uninterested or overwhelmed by what goes on in their classes.

*For copies of the instruments related to these styles see Handbook for Faculty Development, Vol. I., Bergquist and Philipps, Pacific Soundings Press, 1976.

STUDENT STYLES

Developed by Mann, Arnold, Binder, Cytrynbaum, Newman
Ringwald, Ringwald and Rosenwein
See The College Classroom: Conflict, Change & Learning,
Wiley, 1970

These descriptions of student learning style clusters are based on interviews, questionnaires and analyses of classroom behavior.

CLUSTER 1: The compliant students. These are typical students of the traditional classroom. Conventional, contented, trusting of authorities, willing to go along with what the teacher wants. Focus on understanding material rather than criticizing it or formulating own ideas. Somewhat younger than average (mostly freshmen), may not have begun Ericksonian identy crisis.

CLUSTER 2: The anxious-dependent students. Very concerned about and dependent on what authorities think of them. Low self-esteem, doubtful of own intellectual competence, anxious about exams and grades. Class comments hesitant and tentative.

CLUSTER 3: The discouraged workers. Intelligent, hard-working, intellectually involved, but chronically depressed and personally distant. Afraid their destructive impulses will lead them to hurt others.

CLUSTER 4: The independent students. Self-confident, interested, involved; tend to identify with teacher and see him/her as colleague. Older than average (mostly upperclassmen); seem to have achieved firmer identity than students in other clusters.

CLUSTER 5: The heroes. Intelligent, creative, involved; resentful of authorities, rebellious. Introspective; struggling to establish identity. Ambivalent toward teacher, erratic in performance.

CLUSTER 6: The snipers. As rebellious as five, but more defensive and less creative. Low self-esteem, afraid of introspection, attracted to authoritarian class structure. Uninvolved and indifferent toward class; stress fact that they were required to take course. In class, tend to lash our and quickly withdraw.

CLUSTER 7. The attention-seekers. Orientation social rather than intellectual. Want to be liked, to please, to get good grades. Women flirt; men show off and joke. Not introspective; both self-esteem and control depend on periodic reinforcement from others.

CLUSTER 8. The silent students. Speak in class only when sure teacher will approve. Feel helpless, vulnerable, threatened in relation to teacher; fear engulfment by her/him but long hopelessly for her/his affection.

This group has also identified six teaching styles. These are 1) expert.. concerned mainly with the transmission of facts and information; 2) formal authority..most concerned with role as an agent of control and evaluation for the system (especially the university); 3) socializing agent..guide and gatekeeper for his/her inner circle (psychologists, college teachers); 4) facilitator.. responds primarily to the individual student's definition of own goals; 5) ego ideal..a model - an example of competence, excitement and energy; and 6) person.. tries to communicate the fact, that, in addition to his/her characteristics as a teacher, he/she has personal interests and feelings and can form mutually validating person-to-person relationships with others in the class

Perry, W. G. Forms of intellectual and ethical development in the college years. New York: Holt, Rinehart, & Winston, 1970.

Stages of intellectual and ethical development in the college years.

Perry studied the effect of time on student attitudes. He described an evolution in students' interpretation of their lives as shown in the accounts of their experiences during their four years in college. The changes are characterized by the nine positions described below:

MAIN LINE OF DEVELOPMENT

Position 1: The student sees the world in polar terms of we-right-good vs. other-wrong-bad. Right answers for everything exist in the Absolute, known to Authority whose role is to mediate (teach) them. Knowledge and goodness are perceived as quantitative accretions of discrete rightness to be collected by hard work and obedience (paradigm: a spelling test).

Position 2: The student perceived diversity of opinion and uncertainty, and accounts for them as unwarranted confusion in poorly qualified Authorities or as mere exercises set by Authority "so we can learn to find The Answers for ourselves".

Position 3: The student accepts diversity and uncertainty as legitimate but still temporary in areas where "Authority hasn't found the Answer yet". He supposes Authority grades him in these areas on "good expression" but remains puzzled as to standards.

Position 4: (a) The student perceives legitimate uncertainty (and therefore diversity of opinion) to be extensive and raises it to the status of an unstructured epistemological realm of its own in which "anyone has a right to his own opinion", a realm which he sets over against Authority's realm where right-wrong still prevails, or (b) the student discovers qualitative contextual relativistic reasoning as a special case of "what They want" within Authority's realm.

Position 5: The student perceives all knowledge and values (including Authority's) as contextual and relativistic and subordinates dualistic right-wrong functions to the status of a special case, in context.

Position 6: The student apprehends the necessity of orienting himself in a relativistic world through some form of personal Commitment (as distinct from unquestioned or unconsidered commitment to simple belief in certainty).

Position 7: The student makes an initial Commitment in some area.

Position 8: The student experiences the implications of Commitment, and explores the subjective and stylistic issues of responsibility.

Position 9: The student experiences the affirmation of identity among multiple responsibilities and realizes Commitment as an ongoing, unfolding activity through which he expresses his life style. (Perry, 1970, p. 9-10)

FIELD-DEPENDENT AND FIELD-INDEPENDENT COGNITIVE STYLES AND THEIR EDUCATIONAL IMPLICATIONS

Field Dependent	Field Independent
SOCIAL:	
More frequent among women	more frequent among men
learners leave the material "as is"	learners impose structure on material
sensitive to social cues	not sensitive to social cues
interested in what others do and say	interested in abstractions and theory
people-oriented	perceived as impersonal: cold, distant, individualistic
VOCATIONAL:	
Favor people-oriented vocations --welfare-helping-humanitarian fields --teaching social sciences --persuasive business activities --administration	favor solitary or theoretical work: --sciences --teaching sciences or mathematics --engineering, architecture --production manager --carpenter --mechanic --farmer
LEARNING STYLES:	
better at learning material with social content	not affected by the social content of material
highly affected by criticism	not affected by criticism
experiences a need for external structuring	works well without structure because he/she imposes personal structure
performs best with external reward	works equally well with intrinsic or extrinsic rewards
has trouble learning unstructured material	structures instructured material
has trouble solving problems that require one to extract a critical element or restructure its context	has no trouble solving problems of this type
learns concepts through passive observation	learns concepts through hypothesis testing

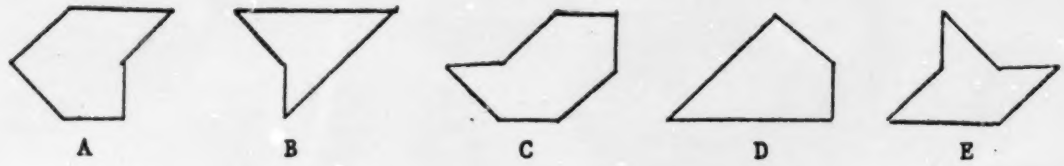
For more information see, Individuality in Learning, Messick & Accosiates. San Francisco: Jossey Bass, 1976.

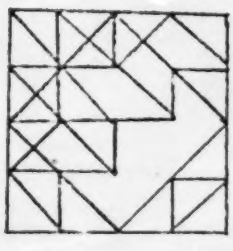
Answers to hidden figures instrument: D, C, A, E, E

Hidden Figures Test

This is a test of your ability to tell which one of five simple figures can be found in a more complex pattern. At the top of the page are five sample figures lettered A, B, C, D and E. Beneath the figures is a set of patterns. Each pattern has a row of letters beneath it. Indicate your answer by putting an X through the letter of the figure which you find in the pattern.

NOTE: There is only one of these figures in each pattern, and this figure will always be right side up and exactly the same size as one of the five lettered figures.





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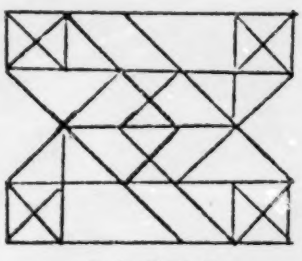

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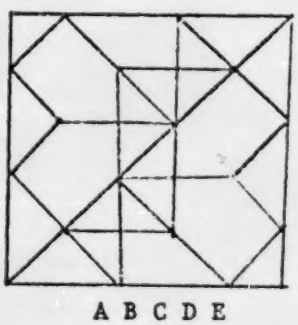

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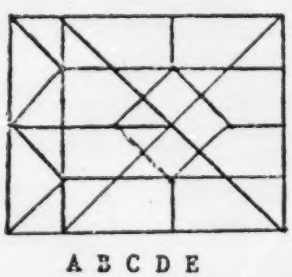

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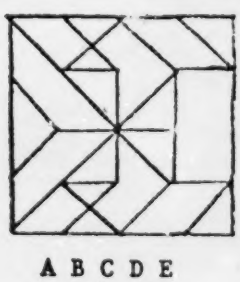

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